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(56) Documents cited
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(54) **Interengageable toy blocks**

(57) Blocks 10 suitable for educational and play uses are interengageable, projections 12 of one block engaging in slots 14 of an adjacent block. Each face may have a square array of projections and slots (figure 3). A block may have rectangular faces, each with two arrays of projections and slots (figure 2). Each block may be hollow and constructed from a foldable blank (figure 6).

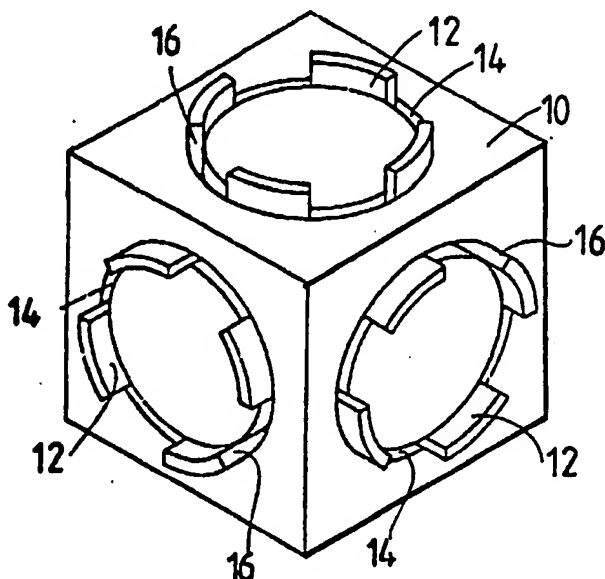


FIG. 1

GB 2 231 502 A

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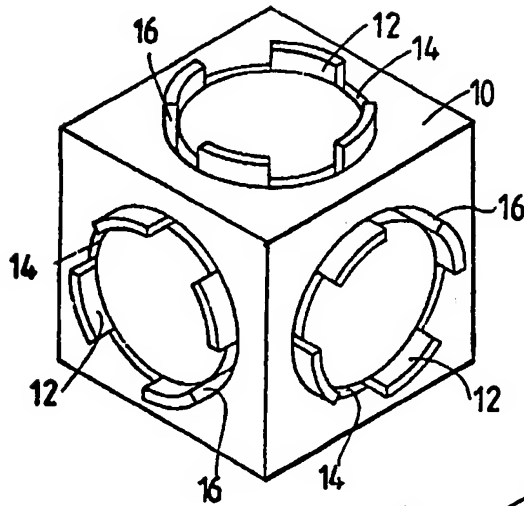


FIG. 1

FIG. 2

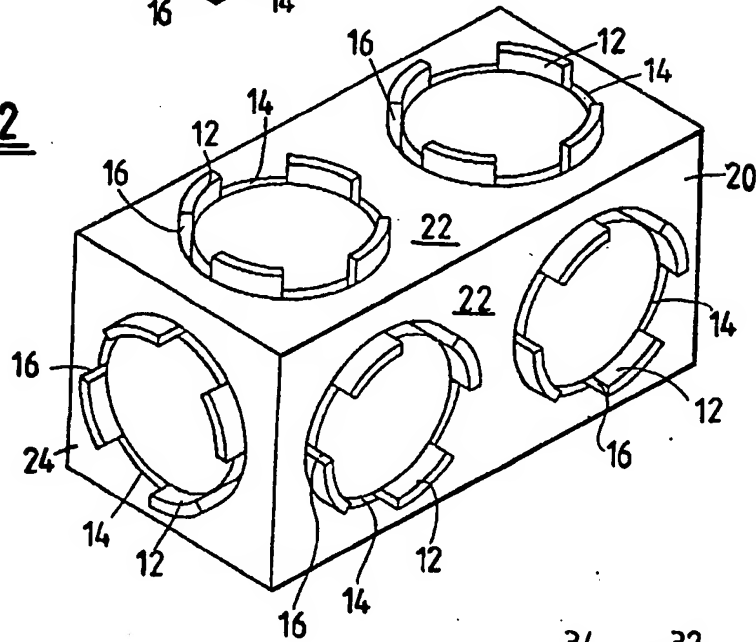
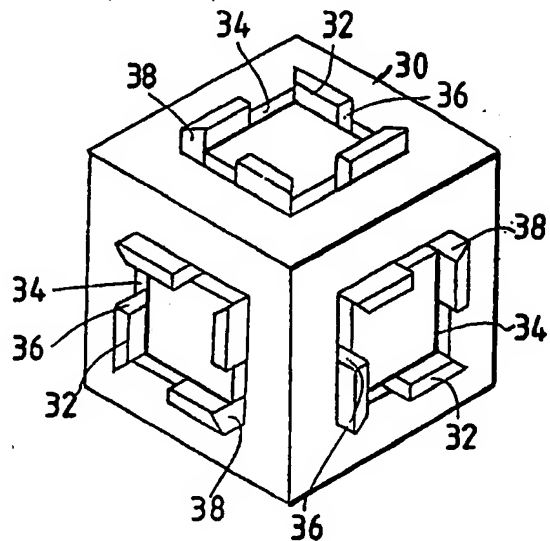


FIG. 3



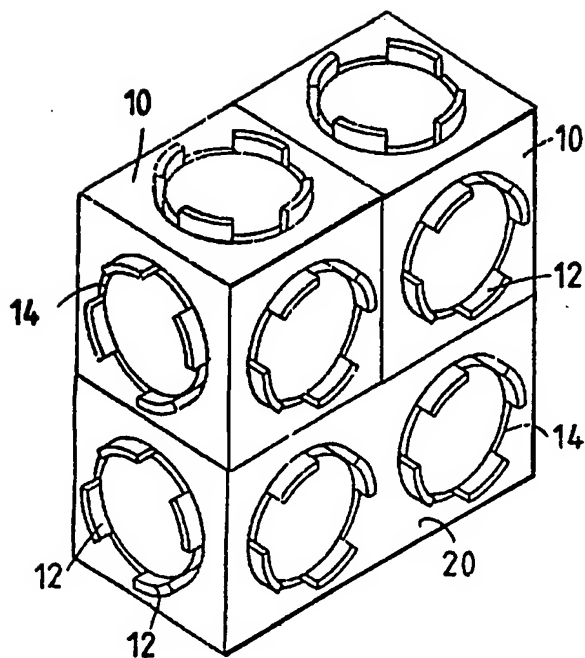


FIG. 4

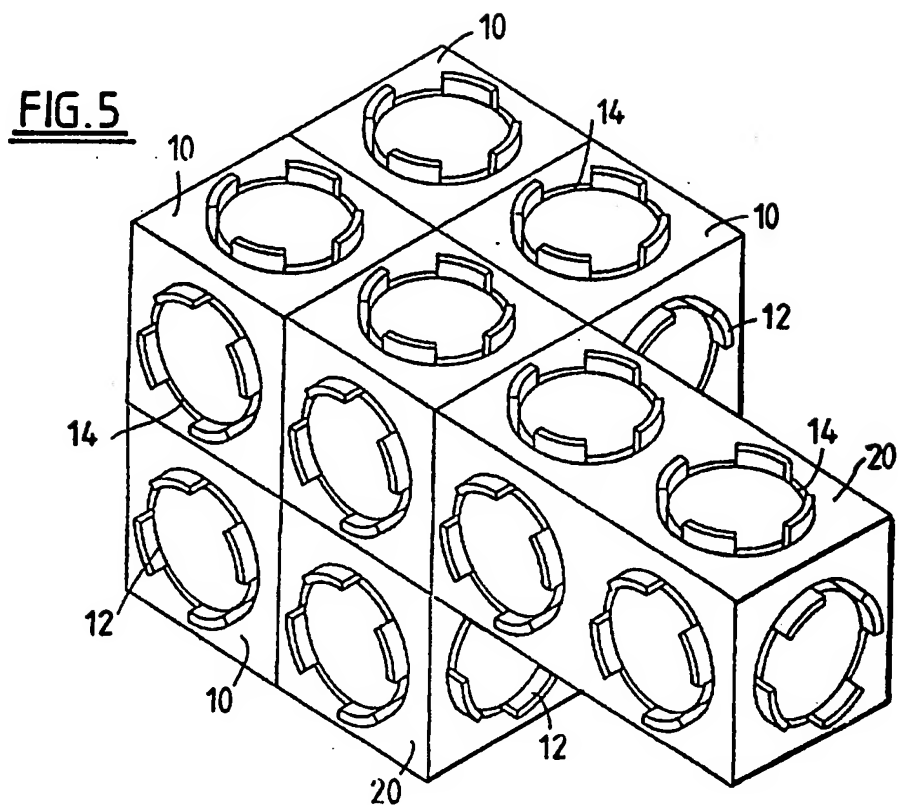


FIG. 5

FIG. 6

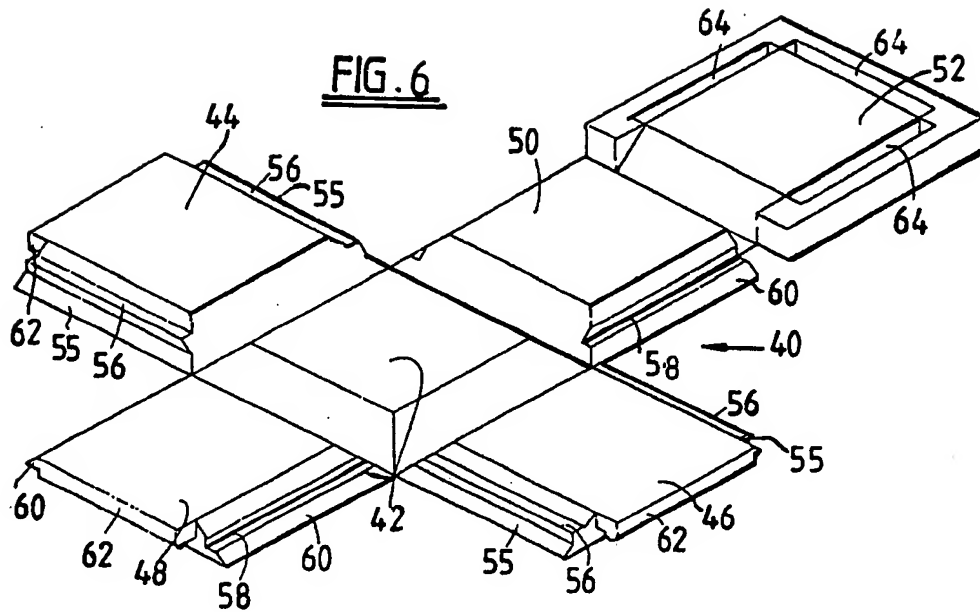


FIG. 8

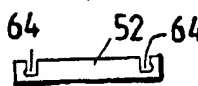


FIG. 9

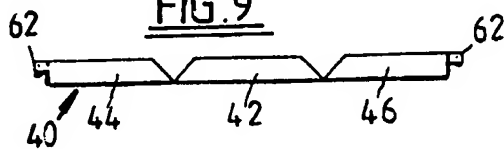


FIG. 11

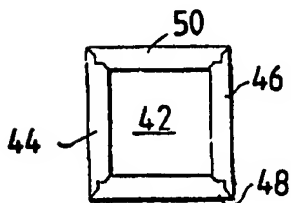


FIG. 7

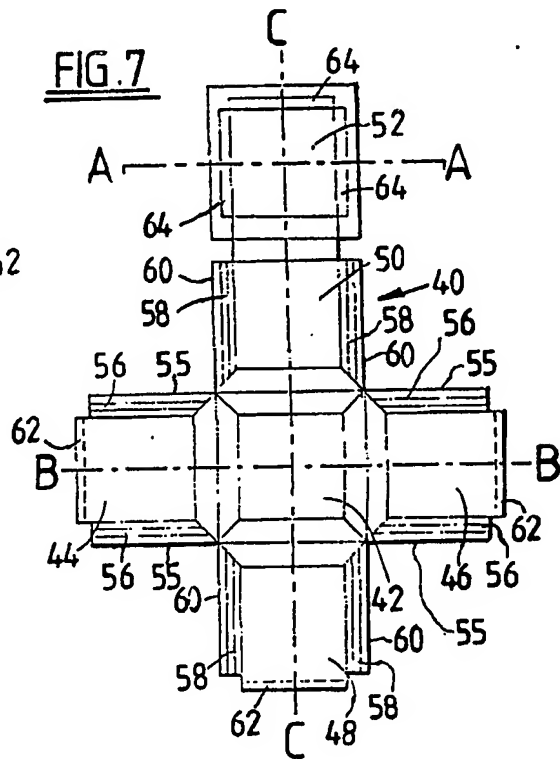
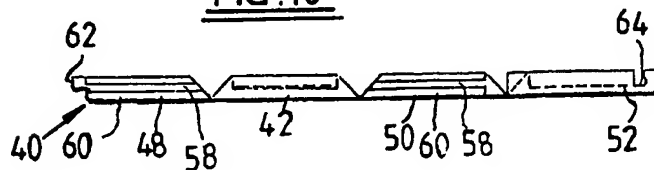


FIG. 10



Title: Interengageable blocks

DESCRIPTION

This invention concerns interengageable blocks suitable for educational and play uses.

5 For many years interengageable blocks such as the Unifix (trade mark) have been used in education, these cubes being interengageable with other cubes on one pair of opposed faces. Thus, such cubes have a limited use in being only able to create linear formations.

10 Educational advantages may arise from having blocks that are interengageable on more than one pair of opposed faces, particularly on all faces.

An object of this invention is to provide a block suitable for educational use that is engageable on more

15 than one face, preferably all faces, with other said blocks.

According to this invention there is provided a block suitable for educational and play uses having on at least one face thereof a formation interengageable

20 with a corresponding formation on a face of another said block.

In a preferred embodiment said formation

comprises alternate projections and slots arranged in a ring, the projections being of a shape and size to engage slots of another said block. The projections and slots may be arranged in any regular perimetral shape, preferably in a circle or a square. For a circular arrangement the projections and slots preferably each cover an arc of 45 degrees and have radially aligned ends. For a square arrangement the projections and slots each occupy half a side of the square, having one end along a diagonal between corners of the square and the other end along a median of the square.

The formations preferably provide a friction fit between engaged blocks, the projections and slots being suitably sized therefor. The friction fit is preferably sufficient to hold blocks together but not prevent ready separation of blocks, particularly by a young child.

Preferred blocks are cubes but cuboids and other close packing regular three-dimensional shapes may also be produced. Thus, as well as linear arrangements, three dimensional arrangements may be produced from blocks having interengaging formations on all faces.

The blocks of the invention may be produced in any suitable way, such as by moulding of plastics

material. It may be more convenient to mould the blocks in the form of a blank to be folded up to form a hollow box shape rather than in a single solid piece. That would also have the advantage of saving material.

5 Such a blank could have a base, sides and top formed with each side attached to an edge of the base by a so-called "living hinge" and a top so attached to an edge of one of said sides. Preferably the other sides will have edge formations that engage complementary

10 formations of the top to hold them together, say by a clipping action so that an adhesive, weld or other connecting means is not necessary.

This invention will now be further described, by way of example only, with reference to the accompanying

15 drawings, in which:-

Figure 1 shows a first interengageable block according to the invention;

Figure 2 shows a second interengageable block according to the invention;

20 Figure 3 shows a third interengageable block according to the invention;

Figures 4 and 5 show typical interengageable block arrangements;

Figure 6 is a perspective view of a moulded

25 blank for forming a block of the invention;

Figure 7 is a plan view of the blank of Figure 6;
Figure 8 is a section on line AA of Figure 7;
Figure 9 is a section on line BB of Figure 7;
Figure 10 is a section on line CC of Figure 7;

5 and

Figure 11 is a section through a folded up blank.

Referring to Figure 1 of the accompanying drawing
a block 10 interengageable with other blocks 10 is
basically a cube having mutually engaging projections
10 12 and slots 14 on each face thereof. The projections
and slots are arranged alternately in circles and are
positioned so that the projections of a face of one
block engage the slots of a face of another block when
the blocks are aligned and pressed together. The
15 projections 12 are arcuate having radially aligned ends
16 and the slots 14 are correspondingly shaped. The
projection and slots are sized to give a friction fit
therebetween sufficient to hold blocks together but not
so strongly that a young child cannot separate
20 engaged blocks.

In Figure 2 of the accompanying drawings a cuboid
block 20 is shown which has the same interengaging
arrangements as the block of Figure 1 but is twice the
length having two sets of projections/slots 12, 14 on
25 its faces 22 and one set on each end 24.

Turning to Figure 3 of the accompanying drawings an alternative interengaging arrangement is shown for a cube shaped block 30. The interengaging arrangement for this cube again comprises mutually engaging
 5 projections 32 and slots 34 arranged alternately but arranged in a square on each face of the cube. Each projection has one right angle end 36 on a mid line through the cube and its other end 38 along a diagonal from corner to corner of a block face. As in Figures 1
 10 and 2, the projections and slots are sized for a friction fit sufficient to hold blocks together but not so strongly that a young child cannot pull apart connected blocks.

Figures 4 and 5 show arrangements of blocks 10
 15 and 20 (Figures 1 and 2 respectively) connected together but it will be appreciated that other three-dimensional arrangement of blocks are possible using blocks 10 or blocks 20 or a combination thereof.

Referring now to Figures 6 to 11 there is
 20 illustrated one way in which the blocks of Figures 1 to 3 may be produced from plastics material. A blank 40 is produced by injection moulding and is then folded up into the block shape.

The blank 40 provides a base part 42 having
 25 attached thereto on its edges block sides 44, 46, 48

and 50, sides 44 and 46 being identical in form and a top part 52 attached to side 50 on its edge opposite to its attachment to the base part 42. The connections between the base 42 and the sides 44 to 50 and between side 50 and the top 52 are of the "living hinge" type, so that the sides and the top part can be folded up to form a cube.

The intended mating edges of the sides 44 to 50 and the base 42 are chamfered to 45 degrees and edges 55 of the sides 44 and 46 each have a rib 56 that fits a corresponding groove 58 in edges 60 of the sides 48 and 50 when the sides are folded up.

Each of the sides 44, 46 and 48 have at the edge remote from the base 42 a lipped extension 62 which is intended to locate in correspondingly shaped grooves 64 of the top 52.

Thus, by moulding the blank in resilient plastics material, intended outer faces having the necessary projections and slots for interengagement of blocks, the block can be assembled by folding the sides up from the base and pressing the top onto the lipped extensions of the sides to hold the sides together and form the desired block.

CLAIMS

1. A block suitable for educational and play uses having on at least one face thereof a formation interengageable with a corresponding formation on a face of another said block.
5
2. A block as claimed in claim 1, wherein said formation comprises alternate projections and slots arranged in a ring, the projections being of a shape and size to engage slots of another said block.
- 10 3. A block as claimed in claim 2, wherein the projections and slots are arranged in a regular perimetral shape.
4. A block as claimed in claim 3, wherein the projections and slots are arranged in a circle, each slot or projection covering an arc of 45 degrees and having radially aligned ends.
15
5. A block as claimed in claim 3, wherein the projections and slots are in a square arrangement, each slot or projection covering half of a side of the square, having one end along a diagonal between corners of the square and the other end along a median of the square.
20
6. A block as claimed in any one of claims 1 to 5,

wherein the formations provide a friction fit between engaged blocks.

5 7. A block as claimed in any one of claims 1 to 6, wherein the block is a cube and has said formations on each face.

8. A block suitable for educational and play uses substantially as hereinbefore described with reference to and as illustrated in any one of the accompanying drawings.